

Application No. 10/743,732
of Stephen CARLEY

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A system for analyzing the performance of a network comprising:

at least one data collection agent (DCA) located on a network and which collects performance data including at least a first plurality set of measurements of a single network parameter and at least a first second set of measurements including at least a single measurement of the single network parameter, each measurement of the first plurality set of measurements taken at a different time;

a processing module interconnected with the at least one DCA and which calculates at least (a) a first variance statistic and (b) a second variance statistic, the first variance statistic being a variance statistic of the first plurality set of measurements and the second variance statistic being a variance statistic of the at least a first second set of measurements; and

a comparison module interconnected with the processing module and which compares the first variance statistic with at least the second variance statistic to determine if a predetermined relationship exists between the first variance statistic and the second variance statistic, wherein

the processing module is further programmed to alert a user about a potential network performance problem based, at least in part, on whether the predetermined relationship is determined to exist between the first and second variance statistics.

2. (currently amended) The system of claim 1 wherein each measurement of the first plurality set of measurements is taken on a periodic basis over a first

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period of time and each of the ~~first~~ second set of measurements is taken over a second period of time.

3. (original) The system of claim 2 wherein the second period of time is included within the first period of time.

4. (currently amended) The system of claim 2 further including a data storage module interconnected to the at least one DCA and the processing module for storing at least the first ~~plurality~~ set of measurements and the at least a first set of measurements and wherein the second period of time is not included within the first period of time.

5-8. (canceled)

9. (original) The system of claim 1 including a user display for displaying at least the first variance statistic and the second variance statistic.

10. (currently amended) A method of analyzing the performance of a network including:

collecting performance data including a first ~~set~~ plurality of measurements of a single network parameter, each measurement of the first ~~set~~ plurality of measurements taken at a different time;

collecting at least a ~~first~~ second set of measurements including at least a single measurement of the single network parameter;

calculating a first variance statistic associated with the first ~~plurality~~ set of measurements;

calculating at least a second variance statistic associated with the ~~first~~ at least a second set of measurements; and

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comparing the first variance statistic with at least the second variance statistic to determine if a predetermined relationship exists therebetween; and alerting a user about potential network performance problems based, at least in part, on whether the predetermined relationship is determined to exist between the first and second variance statistics.

11. (currently amended) The method of claim 10 wherein:

the collecting of the first set plurality of measurements includes taking each measurement of the first set plurality of measurements on a periodic basis over a first period of time; and

the collecting of the first second set of measurements includes taking each measurement of the at least a first set of measurements over a second period of time.

12. (original) The method of claim 10 wherein a second period of time is included within a first period of time.

13. (currently amended) The method of claim 10 further including storing at least the first set plurality of measurements and the first second set of measurements in a data storage facility.

14. (original) The method of claim 13 wherein a second period of time is not included within a first period of time.

15-17 (canceled)

18. (currently amended) The method of claim 10 wherein:

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the calculating of the first variance statistic includes calculating an average value equal to the average value of the first set plurality of measurements; and

the calculating of the second variance statistic includes calculating an average value equal to the average value of the first second set of measurements.

19. (original) The method of claim 10 further including displaying at least the first variance statistic, the second variance statistic and the results of the comparison therebetween on a user display.

20. (currently amended) A method of analyzing the performance of a network including:

collecting performance data including a first set plurality of measurements of a single network parameter, each of the first set plurality of measurements taken at a different time;

collecting at least a first second set of measurements including at least a single measurement of the single network parameter;

calculating a first variance statistic associated with the first set plurality of measurements;

calculating at least a second variance statistic associated with the first second set of measurements; and

determining whether a potential problem exists with the network's performance based, at least in part, on a comparison of the first and second variance statistics; and

generating an alarm when it is determined that a problem exists with the network's performance.

~~displaying at least the first variance statistic and the second variance statistic on a user screen display.~~

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21. (currently amended) A system for analyzing the performance of a network comprising:

at least one data collection agent (DCA) located on a network and which collects performance data including a first set plurality of measurements of a single network parameter and at least a first second set of measurements including at least a single measurement of the single network parameter, each measurement of the first set plurality of measurements taken at a different time;

a processing module interconnected with the DCA and which calculates at least a first variance statistic and a second variance statistic, the first variance statistic being a variance statistic of the first set plurality of measurements and the second variance statistic being a variance statistic of the first second set of measurements; and wherein

the processor is further programmed to determine whether a potential problem exists with the network's performance based, at least in part, on a comparison of the first and second variance statistics; and to

generate an alarm when it is determined that a problem exists with the network's performance.

~~a user display for displaying at least the first variance statistic and the second variance statistic.~~

22. (new) A system as in claim 1 further comprising a mechanism constructed and adapted to notify the user by one or more of the following: (a) sending an e-mail to the user; (b) sending a fax to the user; and (c) initiating a phone call to the user.

23. (new) A system as in claim 1 wherein the user is alerted by a message to at least one of a PDA and a cellular telephone.

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24. (new) A method as in claim 10 wherein the alerting of the user comprises:

notifying the user by one or more of the following: (a) sending an e-mail to the user; (b) sending a fax to the user; and (c) initiating a phone call to the user.

25. (new) A method as in claim 10 wherein the user is alerted by a message to at least one of a PDA and a cellular telephone.

26. (new) A method for analyzing the performance of a streaming media service operating on a network, the method comprising:

collecting performance data including a first set of measurements of a single network parameter, each measurement of the first set of measurements taken at a different time;

collecting at least a second set of measurements including at least a single measurement of the single network parameter;

determining performance data statistics based on the collected performance data; and

based at least in part on the performance data statistics, alerting a user about network performance that is outside acceptable tolerance or control limits.

27. (new) A method comprising:

collecting periodic measurements of a network performance metric;

automatically calculating variance statistics of the collected metric,

the statistics including at least one of an average, mean, median, minimum, maximum and standard deviation of the periodic measurements of the single metric; and

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using a history of performance data statistics to alert a user about performance of network services that are outside acceptable tolerance or control limits.

28. (new) The system of claim 2 wherein: the processing module also calculates the standard deviation of the first set of measurements; and the comparison module determines if the value of the second variance statistic is within a predetermined multiple of the standard deviation of the value of the first variance statistic.

29. (new) The system of claim 28 wherein the comparison module determines if the value of the second variance statistic is more than one standard deviation from the value of the first variance statistic.

30. (new) The system of claim 28 wherein the comparison module determines if the value of the second variance statistic is within one of either a first range and a second range of the value of the first variance statistic, the first range defined by the values greater than one but less than or equal to two standard deviations from the value of the first variance statistic and the second range defined by the values greater than two standard deviations from the value of the first variance statistic.

31. (new) The system of claim 24 wherein the variance statistic includes an average value.

32. (new) The method of claim 10 further including calculating the standard deviation of the first set of measurements and wherein the comparing of the first variance statistic to the second variance statistic includes determining if the value

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of the second variance statistic is within a predetermined multiple of the value of the standard deviation of the value of the first variance statistic.

33. (new) The method of claim 28 wherein the comparing of the first variance statistic to the second variance statistic includes determining if the second variance statistic is more than one standard deviation from the first variance statistic.

34. (new) The method of claim 29 wherein the comparing of the first variance statistic to the second variance statistic includes determining if the value of the second variance statistic is within one of either a first range and a second range, the first range defined by the values greater than one but less than or equal to two standard deviations from the value of the first variance statistic and the second range defined by the values greater than two standard deviations from the value of the first variance statistic.

35. (new) A system as in claim 1 wherein the network parameter is selected from the group consisting of: end-to-end time; throughput, DNS lookup time; connect time; request time; response time; teardown time; download time; quantity of data received; packet loss; percent packet loss; packets received; packets late; packets resend requested; packets recovered; packets resent; packets received normally; current bandwidth; and clip bandwidth.

36. (New) A system as in claim 1 wherein the first and second variance statistics are selected from the group consisting of: mean value, median value, average value, standard deviation, minimum value and maximum value.